

Remarks

The Official Action rejected claims 1-10, 12-14 and 16-34. Applicant has amended claims 1, 7 and 8, cancelled claims 12-14, and added claims 35-38. Applicant respectfully requests allowance of claims 1-10 and 16-38.

Claim Rejection under 35 USC 102 (Olarig)

The Official Action rejected claims 1, 7-9 under 35 USC 102(e) as being anticipated by Olarig et al. (US Patent 6,587,909). Applicant has amended claims 1, 7 and 8. Applicant respectfully requests allowance of claims 1 and 7-9.

As is well-established, in order to successfully assert a *prima facie* case of anticipation, the Official Action must provide a single prior art document that includes every element and limitation of the claim or claims being rejected. Therefore, if even one element or limitation is missing from the cited document, the Official Action has not succeeded in making a *prima facie* case.

Claims 1 and 7-9

Each of claims 1 and 7-9 require enabling a communication interface ***on a hot plug module*** to establish a communication link with a running computing device. Olarig in the cited column and lines teaches that a memory controller provides power to the slot connector and allows time for the power on the memory module inserted in the slot connector to stabilize the memory controller. Olarig also teaches that an advanced configuration power interface driver responds to the system control interrupt by calling the control method associated with a hot add memory event. Olarig, however, does not appear to teach enabling a communication interface ***on the hot plug module*** as required by claims 1 and 7-9.

The Examiner's Answer states, "a communication interface **of a hot plug module**" does not mean "a communication interface **on a hot plug module**".

Applicant submits that a person skilled in the art and in light of the specification and common dictionary definitions of the word "of" would interpret "a communication interface **of a hot plug module**" to mean a communication interface that is part of the hot plug module. However, in interest of expediting prosecution, claims 1 and 8 have been amended to more distinctly claim such a relationship between the communication interface and the hot plug module.

Since Olarig does not teach enabling a communication interface **on the hot plug module** to establish a communication link with a running computing device, Olarig does not anticipate claims 1 and 7-9. Applicant respectfully requests the rejection of claims 1 and 7-9 be withdrawn.

Claim Rejection under 35 USC 102 (Bealkowski)

The Official Action rejected claims 1-10, 12-14 and 16-34 under 35 USC 102(e) as being anticipated by Bealkowski et al. (US Patent 6,282,596). Applicant has amended claims 1, 7 and 8, and has cancelled claims 12-14. Applicant respectfully requests allowance of claims 1-10 and 16-34.

As is well-established, in order to successfully assert a *prima facie* case of anticipation, the Official Action must provide a single prior art document that includes every element and limitation of the claim or claims being rejected. Therefore, if even one element or limitation is missing from the cited document, the Official Action has not succeeded in making a *prima facie* case.

Claims 1 and 5

Claim 1 as amended and claim 5, require enabling a communication interface **on the hot plug module** to establish a communication link with a running computing device. Bealkowski appears to teach a hot-pluggable system bus for processor cards 11a-11d. However, the processor cards 11a-11d appear to have no communication interface, or at least Bealkowski appears to provide no teaching regarding enabling a communication interface of the processor cards 11a-11d which are presumably being equated with the “hot plug module” limitation of claims 1 and 5. Bealkowski discloses FET switches 82, 86 to control power supplied to the processor cards 11a-11d. Bealkowski further discloses a clock buffer to control application of clock signals to the processor cards 11a-11d. Moreover, Bealkowski discloses FET switches 80 that provide front-side isolation to maintain electrical integrity during hot-plug. However, as clearly depicted in Bealkowski FIGS. 3A and 3B, the FET switches 80, 82, 86 and the clock buffer are all on the computer system side of the CPU connectors 14 and are not part of the processor cards 11a-11d.

The Applicant believed the Examiner was relying on these FET switches 80, 82, 86 and clock buffer for a teaching of a “communication interface” which are clearly not “a communication interface **on a hot plug module**” as required by Applicant’s claims 1 and 5. However, based on the Examiner’s Answer, Applicant now believes the Examiner is relying on the CPU connectors 14 and the inherent idea that the processor cards 11 must have an interface for mating with the CPU connectors 14. However, even if the processor card 11 inherently have an interface for mating with the CPU connectors 14, Bealkowski does not explicitly or inherently teach that such an interface is enabled in order to establish a communication link. Bealkowski explicitly teaches using FET switches 80, 82, 86 to control the signaling

between the processor cards 11a-11d and the computer system. Such FET switches 80, 82, 86 are sufficient to provide the isolation described by Bealkowski. As a result, there is no reason to believe that the interfaces of the processor cards 11 have the capability of being enabled.

Since Bealkowski appears to only disclose enabling components (e.g. switches 80, 82, 86) that are not part of a hot plug module, Bealkowski does not teach enabling a communication interface **on a hot plug module** as required by Applicant's claims 1 and 5. Applicant respectfully requests the rejection of claims 1 and 5 be withdrawn.

Claims 2-4

Each of claims 2-4 depends from claim 1. Accordingly, each of claims 2-4 is allowable for at least the reasons stated above in regard to claim 1. Further, each of claims 2-4 requires both a communication interface **on the hot plug module** and a communication interface **of a running computer system**. The Official Action appears to overlook this aspect of the claims 2-4 since the Official Action does not appear to clearly identify which components of Bealkowski are being relied upon for a teaching of the communication interface **on the hot plug module** and which components of Bealkowski are being relied upon for a teaching of the communication interface **of the running computing system**. Applicant respectfully submits that Bealkowski does not disclose both a communication interface of **a hot plug module** and a communication interface **of a running computer system**.

Since Bealkowski does not teach each and every limitation of the Applicant's claims 2-4, Bealkowski does not anticipate claims 2-4. Applicant respectfully requests the rejection of claims 2-4 be withdrawn.

Claim 6

Claim 6 depends from claim 1. Accordingly, claim 6 is allowable for at least the reasons stated above in regard to claim 1. Further, claim 6 requires adding one or more memory **caching input/output hubs** to an input/output pool of the running computer system. The Official Action on page 11 appears to be relying on the processor cards 11a-11d and the disclosed L2 caches of the processors for a teaching of a caching input/output hub. Applicant respectfully submits that one skilled in the art would not equate the “caching input/output hub” limitations of claim 6 with the processor cards 11a-11d of Bealkowski. The term input/output hub (I/O hub) is a well defined term in the computer architecture arts and is commonly used to refer to a component that acts like a traffic cop in directing I/O traffic to, from, and between I/O devices. An embodiment of an I/O hot plug module that comprises an I/O hub 510 is depicted in FIG. 5 and described in paragraphs [0025]-[0027]. In light of such a description in Applicant’s application and the generally accepted meaning of the term input/output hub, one skilled in the art simply would not equate a processor card having a general purpose processor with an I/O hub designed to direct I/O traffic between I/O devices.

Furthermore, claims 5 and 6 are similarly structured with claim 5 being directed to memory caching processors and claim 6 being directed to memory caching input/output hubs. The concept of claim differentiation would tend to support the concept that memory caching input/output hubs are not memory caching processors, such as, for example, the processors of the Bealkowski processor cards 11a-11d. For the above reasons, Applicant respectfully requests the rejection of claim 6 be withdrawn.

Claim 7-8

Claim 7 depends from claim 1. Accordingly, claim 7 is allowable for at least the reasons stated above in regard to claim 1. Furthermore, claims 7 and 8, as amended require adding the identified memory of the hot plug module to a ***memory pool to increase the memory pool***.

Applicant is unable to locate where Bealkowski teaches adding the identified memory of the hot plug module to a memory pool ***to increase capacity of the memory pool***. Bealkowski in (column 8, lines 13-25) teaches setting the power-on configuration features for the processor card of the particular processor subsystem. And these functions are accomplished by the service processor which sends commands to the hot plug controller to drive a group of processor signal pins.

Further Bealkowski appears to teach hot-pluggable processor cards. However, the hot-pluggable processor cards do not appear to have any memory. Bealkowski merely indicates that the processors of the processor cards have cache memories. Such cache memories do not increase the storage capacity of the running computer device, but only provide a mechanism for the processors to retain local copies of data stored in the memory 32 of the computer system. As a result, such cache memories are not added to a memory pool of the running computer when the processor card is added to the running computer system.

The Official Action appears to further rely on the service processor 31 of Bealkowski and the service processor 31 and its associated memory for a teaching of the limitations of claims 7 and 8. However, the associated memory of the service processor 31 is not memory of a hot plug module. Nor is there any indication that the service processor 31 identifies memory of a hot plug module. Furthermore, the associated memory of the service processor 31 is preferably maintained separately

from the rest of the computing device as taught by column 5, lines 52-60. Applicant respectfully fails to see how the service processor 31 and associated memory of Bealkowski having any bearing on the patentability of claims 7 and 8.

Since Bealkowski does not teach adding the identified memory of the hot plug module to a memory pool **to increase the memory pool**, Bealkowski does not anticipate claims 7 and 8. Applicant respectfully requests the rejection of claims 7 and 8 be withdrawn.

Claims 9 and 10

Each of claims 9 and 10 depends from claim 8. Accordingly, each of claims 9 and 10 is allowable for at least the reasons stated above in regard to claim 8. Furthermore, the reasons stated above for claims 2-4 in regard to requiring both a communication interface of a hot plug module and a communication interface of a running computer system are relevant to the patentability of claim 10. Applicant respectfully requests the rejection of claims 9 and 10 be withdrawn.

Claim 16

Claim 16 requires examining **a plurality of interface control registers** in response to a hot plug event, and identifying which of a plurality of hot plug events caused the hot plug interrupt based upon the **plurality of interface control registers**. Bealkowski in the cited (Fig 4 and column 7, lines 51-65) teaches a process to control addition of hot plug processor subsystems including a processor card and associated VRM. Further, Bealkowski in (column 8, lines 13-25) teaches setting the power-on configuration features for the processor card of the particular processor subsystem. And these functions are accomplished by the service processor which sends commands to the hot plug controller to drive a group of

processor signal pins. Applicant has been unable to locate any teaching in regard to examining **a plurality of interface control registers**, as required by Applicant's claim 16.

Also, Examiner states that in (column 5 lines 31-60) Bealkowski teaches, "a service processor 31 controls the hot plug controller and monitor the events in the computer such as insertion or removal and stores such information to its associated memory and controller routine". Bealkowski in the above cited (column and lines) teaches a service processor 31 that has its own associated memory and control routines. Also the service processor 31 monitors events within the data processing system 10. Again, Applicant has been unable to locate any teaching in regard to examining **a plurality of interface control registers** as required by Applicant's claim 16. Applicant submits that a person skilled in the art would not consider routine events of the service processor 31 as a teaching in regard to "examining **a plurality of interface control registers** in response to a hot plug event, and identifying which of a plurality of hot plug events caused the hot plug interrupt based upon the **plurality of interface control registers**" as required by Applicant's claim 16.

Since Bealkowski does not teach each and every limitation of claim 16, Bealkowski does not anticipate claim 16. Applicant respectfully requests that the rejection of claim 16 be withdrawn.

Claims 17-23

Each of claims 17-23 depend from claim 16. Accordingly, each of claims 17-23 is allowable for at least the reasons stated above in regard to claim 16. Further, each of claims 17-23 includes additional novel and nonobvious limitations. For example, claim 17 requires determining whether hot plug addition or hot plug

removal has been requested ***based upon an interface control register*** associated with the hot plug module. While Bealkowski discloses hot plug addition and hot plug removal of processors, Bealkowski appears to provide no teaching in regard to determining whether a hot plug addition or a hot plug removal has been requested based upon ***an interface control register*** as required by the invention of Applicant's claim 17. Similarly, Bealkowski appears to provide no teaching in regard to making the determinations of claims 18 and 22 based upon ***an interface control register***. Furthermore, Bealkowski appears to provide no teaching in regard to determining ***that no other hot plug addition is in progress*** as required by claim 23.

Since Bealkowski fails to teach one or more limitations of claims 17-23 as identified above, Bealkowski does not anticipate claims 17-23. Applicant respectfully requests the rejection of claims 17-23 be withdrawn.

Claims 24-27

Claim 24 requires ***a hot plug module comprising a communications interface*** to establish a communication link with a running computing device in response to being enabled and to de-establish the communication link in response to being disabled. Applicant submits that the word ***comprising*** is a common traditional phrase to indicate the preceding object includes or contains the element that follows. Accordingly, claim 24 as originally drafted requires that the communication interface be a part of the hot plug module.

Further, as stated above in regard to claim 1, Bealkowski does not teach a hot plug module that has a communications interface that can be enabled and disabled. Instead, Bealkowski has switches on the computer system side of a connector to isolate the hot plug module during addition and removal. Furthermore, Bealkowski

does not disclose a hot plug module with an interface control register to indicate whether the communication interface is enabled or disabled. Instead, Bealkowski discloses a hot plug control that is on the computer system side of the connector to control FET switches used to isolate the hot plug processor cards 11, 20 and 30.

Since Bealkowski fails to teach ***a hot plug module comprising a communications interface*** to establish a communication link with a running computing device in response to being enabled and to de-establish the communication link in response to being disabled, Bealkowski does not anticipate claim 24. Applicant respectfully requests the rejection of claim 24 be withdrawn.

Claims 25-27

Each of claims 25-27 depends from claim 24. Accordingly, each of claims 25-27 is allowable for at least the reasons stated above in regard to claim 24. Further, each of claims 25-27 includes additional novel and nonobvious limitations. For example, claim 27 requires that a processor of the hot plug module enable the communication interface of the hot plug module. Bealkowski, however, appears to rely on the hot plug control on the computer system side of the connector to active switches on the computer system side of the connector. There appears to be no teaching of a processor of a hot plug module enabling a communication interface of the hot plug module.

Since Bealkowski fails to teach one or more limitations of claims 25-27 as identified above, Bealkowski does not anticipate claims 25-27. Applicant respectfully requests the rejection of claims 25-27 be withdrawn.

Claims 28-30

Claim 28 requires a midplane having a hot plug interface and a hot plug module to update the state of the hot plug interface of the midplane to indicate when the resources are ready to join the computing device. Bealkowski does not teach a hot plug module that updates a hot plug interface of a midplane as required by claim 28. As stated above, Bealkowski merely indicates that a service processor and/or a hot plug control of the computer system side of the connector manage FET switches that isolate a processor card during addition and removal. There appears to be no teaching of the processor card updating a hot plug interface on the computer system side of the connector. Since Bealkowski does not teach each and every limitation of claim 28, Bealkowski does not anticipate Applicant's claim 28.

Claims 29-30

Each of claims 29-30 depends from claim 28. Accordingly, each of claims 29-30 is allowable for at least the reasons stated above in regard to claim 28. Further, each of claims 29-30 includes additional novel and nonobvious limitations. For example, claim 30 requires that a hot plug interface detect whether framing packets are received from the hot plug interface. Applicant has reviewed Bealkowski in detail and are unable to locate any teaching of "framing packets".

Since Bealkowski does not teach each and every limitation of claims 29-30, Bealkowski does not anticipate Applicant's claims 29-30.

Claims 31-34

Claim 31 requires a midplane having **a switch that comprises a plurality of interface control registers**. While Bealkowski teaches FET switches, Bealkowski appears to provide no teaching in regard to a switch **that has a plurality of**

interface control registers. Bealkowski therefore does not anticipate the invention of claim 31. Each of claims 32-34 depends from claim 31. Accordingly, each of claims 32-34 is allowable for at least the reasons stated above in regard to claim 28. Applicant respectfully requests the rejection of claims 31-34 be withdrawn.

Newly Added Claims

Applicant has added new claims 35-38 which include novel and non-obvious limitations not taught by the cited art. In order to expedite the prosecution of the present application, Applicant points out that newly added claims 35 and 37 require transferring packets between the communication interface on the hot plug module and the communication interface of the running computer system. Neither Olarig nor Bealkowski appear to teach such a limitation. The newly added claims 36 and 38 require determining that the communication link has been established in response to transferring a predetermined number of error free packets. Neither Olarig nor Bealkowski appear to teach such a limitation. Applicant respectfully requests allowance of claims 35-38.

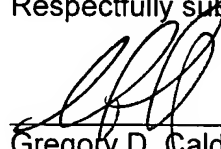
Conclusion

The foregoing is submitted as a full and complete response to the Official Action. Applicant submits that the pending claims are in condition for allowance. Reconsideration is requested, and allowance of the now pending claims is earnestly solicited.

Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #02-2666. If the Examiner believes that there are any informalities which can be corrected by an Examiner's amendment, a telephone call to the undersigned at (503) 439-8778 is respectfully solicited.


Respectfully submitted,

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